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Review of Fatal Injuries in the Petroleum Industry for 1984

Statistics Department

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52ND ANNUAL REVIEW OF FATAL INJURIES AS REPORTED BY THE PETROLEUM INDUSTRY TO THE AMERICAN PETROLEUM INSTITUTE FOR 1984

ON-DUTY FATALITIES

One hundred and thirty one oil and gas companies and their subsidiaries, employing 427,000 workers, reported 51 on-duty fatal accidents during the year 1984. This equivalent to one fatality for every 8,373 workers employed, compared with 11,022 in 1983.

Companies submitted detailed information on the causes of 47 of the fatal on-duty accidents. This information is reviewed herein. An increase occurred in the number of deaths where motor vehicles were involved, with 6 reported for 1984 compared with 5 in 1983.

Fatal on-duty accidents for 1984 are summarized, by functions and causes, and are compared with similar data for 1983 in table I.

TABLE I

Fatalities by Functions and Causes, Years 1984 and 1983

Function	Cases Reported		Motor Vehicle		Struck by Equipment		Other Trans.		Fall		Fires and Expl.		Toxic Gas or Liquid		Drowning		Electroc.		Caught In or Between		Other	
	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983
Total	47	37	6	5	5	5	3	2	3	0	24	9	1	0	0	0	3	0	1	0	1	16
Exploration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Production	13	11	3	1	2	1	3	2	1	0	1	0	0	0	0	0	2	0	1	0	0	7
Gas Proc.	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
Drilling	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Petr. Mfg.	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Refining	22	6	0	0	0	0	0	0	0	0	20	4	1	0	0	0	0	0	0	0	1	2
Mrkt.-Whole	4	3	1	1	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	1
Mrkt.-Ret.	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Pipe.-Liq.	0	7	0	2	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1
Pipe.-Gas	3	1	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar.-Tank.	3	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar.-Inl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R & D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gen. Serv.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Admi.& Oth.	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PRODUCTION

MOTOR VEHICLE

o The employee was driving a rented car to an oil well test site. While enroute his automobile went off the road and struck a bridge abutment, killing the employee.

o The employee's vehicle was struck when the driver of an oncoming auto lost control, crossed over the median and collided with his vehicle. The estimated speed of the auto which crossed the median was 93 mph.

o The employee was driving a company pickup truck when it was struck by another vehicle, killing him.

STRUCK BY EQUIPMENT

o An employee was attempting to re-establish flow by "rocking" the well with an adjacent well. The interconnecting pipe had been removed and the employee was in the process of removing the choke. The four bolts which held the gray-lock clamp on the choke were removed. When the cap was tapped in order to loosen it, it exploded, striking the employee in the face.

The company believes that its procedures for changing chokes, if followed, are safe and would have prevented the accident. This employee was fully trained and had 17 years of on-the-job experience.

o The employee was unable to obtain a flow of gas through a valve. He began work on the valve and when he loosened the core, it blew out of the valve body and struck him the head.

Prevention: Reorientation and instructions on how to work safely with valves in service, as well as obtaining training material for division use concerning the general area of opening pipelines and fittings in high pressure gas service.

HELICOPTER CRASH

o Three employees were fatally injured when a helicopter used for transporting employees between platforms crashed into the water. The cause was not determined.

HIGH WINDS/FALL

o High winds caused a pulling unit derrick to be blown over, resulting in the death of a derrickman who was in the rod basket at the time.

FIRE AND EXPLOSION

o A foreman was placing an in-line heater into service when the gas line failed. This resulted in a flash fire and fatally burned the foreman.

DROWNING

o The employee was using a crane to lift a load from a workboat onto a platform. After lifting the load and setting the brakes, the load began to slip. The operator attempted to stop the slipping which then overloaded the crane. The crane then tipped over and fell into the water. The operator jumped from the crane but his body never surfaced.

ELECTROCUTION

o A field mechanic disconnected the power supply and used a hot stick to remove and repair two broken disconnects. After replacing these he noticed that he had installed them upside down. Upon attempting to correct the problem his aluminum ladder touched an incoming 7,600 volt line and he was electrocuted. An electrical contractor had been notified, however, this work was initiated prior to his arrival.

Prevention: Removal of aluminum ladders in hazardous areas.

o An electric salt water transfer pump was being used when the main power pole shorted out to the ground wire on the pole. This caused the ground from the pole to the motor pump casing to become electrified. The operator was electricuted when he came in contact with the pump.

GAS PROCESSING

ELECTROCUTION

o An employee was troubleshooting an electrical problem on a refrigeration compressor switch gear. He went to the live side of the cubical and removed the panel exposing the live bust. While inside of the cubical, the employee touched a live terminal which resulted in his electrocution. All future work within the confines of the switch gear will be performed only if the main feeder fuses are pulled and the bust bar is grounded prior to beginning work.

REFINING

FIRE AND EXPLOSION

o While preparing a clean storage tank for relocation an adjacent tank experienced a fire and explosion which fatally injured two welders and one laborer. The cause was traced to an accumulation of flammable vapors from an unknown source ignited by welding sparks.

o Operators noticed a small leak in the shell of the amine tower in the Unsaturate Gas Plant. A "potential fire alarm" was turned in order to initiate in-plant emergency assistance. The operator immediately started to bypass the tower. Before the operation could be completed, the liquid MEA Tower abruptly failed. It was propelled some 3,200 feet off refinery property and the escaping C3/C4 material exploded. The initial fire covered a major portion of the Unsaturate Gas Plant and the adjacent Alkylation Unit. The emergency crew had arrived immediately prior to the explosion and were killed in the explosion.

o The employee was attempting to stop a product overfill from a gasoline storage tank. The employee drove a pickup truck into an adjacent tank dike area during his attempt. When the employee returned to the pickup truck and started the engine the vehicle was engulfed in flames and the employee was fatally burned. The employee did not follow the safety procedure prohibiting vehicles from entering a tank dike area.

o Butane escaped into a brime pit, vaporized and overflowed onto a roadway. The resulting flash fire caused the death of an operator. The ignition source was not determined.

TOXIC GAS

o A relief valve was being removed from the isostripper for repair. Two pipefitters, wearing breathing apparatus, were performing the removal with the assistance of a crane. Sometime during the removal and blinding off of the open relief header an upset on the Claus (sulfur) unit caused a release of hydrogen sulfide gas into the relief system. The events which occurred during this time frame are not exactly known except that the two fitters were left alone for approximately 7 to 10 minutes and both were overcome during this time. Guidelines for hazardous operations should be developed and followed.

OVERCOME

o The employee was installing baffles and KAO-wool in a V-415 Reactor when he was overcome and rendered unconscious. This incident is still under investigation.

MARKETING WHOLESALE

FIRE AND EXPLOSION

o The employee was killed while loading toluene into a compartmented trailer. The explosion and fire occurred due to a build-up of static electricity caused by high loading flow rates.

o An employee suffered multiple fractures, injuries and thermal burns after an explosion occurred while water was being pumped out of a 25,000 gallon underground storage tank following hydrostatic testing. Three days after the incident the employee suffered three heart attacks and died on the following day.

MOTOR VEHICLE

o The driver of a motor transport drowned following a vehicle accident. He was hauling a full load of diesel when his tractor trailer left the roadway, destroyed 150 feet of chain link fence, hit a concrete bridge abutment and went down a 90-foot embankment into a river. The employee was severely injured and drowned before he could be rescued.

There was no apparent mechanical failure and the medical examiner failed to find any medical problems which may have led to the incident.

PIPELINE - GAS

MOTOR VEHICLE

o The employee's passenger car was struck by an oncoming tractor-trailer unit's rear trailer axles. Adverse road conditions existed due to ice and fog. The accident is currently under investigation.

STRUCK BY EQUIPMENT

o Several employees were engaged in the removal of a seal cap from an inlet scrubber in order to change a sock type filter. The pressure within the vessel blew the cap off, striking an employee in the head which resulted in his death.

Prevention: An additional bleed down valve has been added to help relieve pressure. The further instruction of employees as to proper isolation and blow down procedures has also been undertaken.

MARINE TANKER

FALL

o An employee was working on a 30-foot ladder inside of a tank onboard a tanker. He fell off the ladder and died as a result of the fall.

o An employee was part of a 5-man crew which was washing down crude oil residue to prepare a tank for maintenance. He was operating in a safe manner; however, while walking near the edge of the platform the employee slipped and fell approximately 20 feet to his death. The tank was well lighted and there is no apparent reason for the incident.

STRUCK BY EQUIPMENT

o The employee placed a small 7/16" diameter polypropylene line, which was attached to a heavier mooring line, around a mechanical drum in order to secure a vessel. When the slack was taken out of the mooring line, the polypropylene line stretched and broke. The rope struck the employee in the midsection killing him. Fleet personnel should be cautioned in regards to the high potential energy developed by a stretched piece of polypropylene rope.

ADMINISTRATION AND OTHER

MOTOR VEHICLE

o The employee's vehicle was struck in the rear by a second vehicle, which pushed him into the path of an oncoming vehicle. He died due to injuries received.

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